Attachment 1B

9192

EXPLANATION FOR COLUMN E LISTING

ICD: 9192 **Registration Number: 93-R-0433**

Animal Study Proposal Title: Reregistration of CDFA Baits for Control of Norway and Roof Rats in Agricultural Fields

Number and Species of Animals Listed in Column E:

Species: Wild Rat/Peromyscus **Number:** 5 Wild Rat/13 Peromyscus

Brief description of project including reason(s) for species selection:
The purpose of this study is to verify that Norway and roof rats are agricultural pests in California and to assess the efficacy of currently registered baits to determine if they should be re-registered. Baits were tested to determine their efficacy at controlling rat populations in agricultural fields. If proven effective, applications can be submitted to keep rats on the appropriate California Department of Food and Agriculture (CDFA) labels. Specifically, the objectives are:

1. Establish that rats are agricultural pests.
2. Determine efficacy of CDFA baits for controlling rats in agricultural setting.
3. Re-register CDFA baits for control of rats in agricultural setting.

Deer mice are another pest of almond orchards and are often found in the same orchards as roof rats. Deer mice have also been proposed to be removed from the same rodenticide labels. As such, the goal is to test the same bait station design to ascertain the efficacy of this approach at controlling deer mice in almond orchards.

Species selection:
Rats and deer mice were chosen as they are the species of interest for this study. According to the Environments Protection Agency (EPA), the status of the rat as agricultural pests is still undefined. As such, the EPA defines rats as commensal pests, but not agricultural pests,

meaning that all rat baits must meet the challenge diet restrictions to be considered for use. However, rats also cause considerable damage to agriculture, including pistachios, almonds, citrus, and rice. Damage is typically caused by consumption of fruit, nuts, or grains, although rats can also cause extensive damage to trees through girdling of limbs and through loss of irrigation water down burrow systems. Investigators are currently working directly with the EPA to establish the criteria for identifying rats as agricultural pests. Deer mice are considered pests of almond orchards, but efficacy data on the proposed rodenticides for such a field application is lacking.

Justification for unrelieved pain or distress:

Monitoring rats is essentially impossible. These studies are occurring in an agricultural setting in several 10 acre fields/orchards. Norway rat species make burrows underground and roof rats generally make their nests above ground in elevated areas such as trees. In the unlikely event that a rat is found alive but impaired from one of the toxicants, they will be collected and euthanized via a CO_2 chamber. Lethal removal is currently the only effective method for controlling both Norway and roof rats in an agricultural setting. The management practices used in this protocol are considered acceptable and appropriate strategies for controlling rats. Death from this material is considered to be relatively painless as the animals become fatigued and slowly display a loss consciousness before death.

As stated these studies are occurring in an agricultural setting in several 10 acre fields/orchards, deer mice live close to or on the ground often hiding in the underbrush making monitoring of these animals essentially impossible. In the unlikely event that a deer mouse is found alive but injured from one of the toxicants, they will be collected and euthanized via a CO_2 chamber.

Federal regulations requiring procedure:

Not applicable. According to the EPA, the status of rats as agricultural pests is still undefined. As such, the EPA defines rats as commensal pests, but not agricultural pests, meaning that all rat baits must meet the challenge diet restrictions to be considered for use. The challenge diet consists of foods highly preferred by rats in urban settings. However, these food sources are not as readily available in agricultural setting, and as such, baits will likely not need to meet this rigorous criteria to effectively control rats in agricultural fields. Therefore, to keep rats on current CDFA labels, it is necessary to first prove that rats are agricultural pests. Investigators are currently working directly with the EPA to establish the criteria for identifying rats as agricultural pests. Once this is established, baits will need to be tested to determine their efficacy at controlling rat populations in agricultural fields. If proven effective, applications can be submitted to keep rats on the appropriate EPA labels.

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Animal Study Proposal Title: Development of an Integrated Pest Management Program for Vole Control in Artichokes

Number and Species of Animals Listed in Column E:

Species: Vole Number: 38

Brief description of project including reason(s) for species selection:

This is an operational pest control project for which effective control of voles is warranted. The purpose of this study is to assess multiple control strategies which involve lethal control (e.g., discing, trapping, fumigation, baiting) and non-lethal control (e.g., buffer strips). These methods will provide an integrated approach for controlling voles in artichoke fields, which should ultimately decrease vole populations and increase artichoke production in California. Without a comprehensive control program, growers will continue to suffer increasing losses, extensively damaging the artichoke industry in California. Understanding which control methods most effectively reduce vole populations would provide significant benefits to not only artichoke growers, but most agricultural commodity producers in California affected by the voles.

Species selection:

Voles were chosen as they are the species causing damage to artichokes. California meadow voles, *Microtus californicus*, are the primary vertebrate pests in artichoke fields around Castroville, California.

Justification for unrelieved pain or distress:

Pain and death from deep discing and cross discing are likely. However, these are agricultural practices that constantly occur as part of the soil-tilling process. We will simply monitor the potential reduction in vole populations following these soil-tillage procedures.

One of the methods proposed in this protocol causes internal bleeding which is considered to be relatively painless as the animals becomes fatigued and slowly display a loss of consciousness. For those methods that cause death by anoxia, depending on the application, death can be within a few hours or very rapid.

This study is occurring in an agricultural setting, voles make burrows underground making monitoring voles for the lethal treatment strategies impractical and essentially impossible, therefore pain and distress cannot be ameliorated or alleviated. In the unlikely event that a vole is found alive but injured from one of the control strategies, they will be collected and euthanized via a CO_2 chamber.

Federal regulations requiring procedure:

Not applicable. However, all management practices proposed in this protocol are considered

acceptable and appropriate strategies for controlling voles.

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ICD: 9192 **Registration Number:** 93-R-0433

Animal Study Proposal Title: Determining the Efficacy and Cost of Pocket Gopher Control Practices in Alfalfa

Number and Species of Animals Listed in Column E:

Species: Gopher Number: 256

Brief description of project including reason(s) for species selection:

This is an operational pest control project for which effective control of pocket gophers is warranted given extensive damage to alfalfa. This damage can lead to substantial losses in forage production and grower profits. The purpose of the study is to assess the efficacy and cost effectiveness of several control methods including trapping, fumigation, rodenticide application and a Pressurized Exhaust Rodent Controller device. Understanding which control measures most effectively reduce gopher populations while minimizing costs could provide significant financial benefits to many growers in California and other adjacent states.

Species selection:

Pocket gophers are the most widespread and significant vertebrate pest problem in alfalfa. We need to determine which control techniques are most efficacious and cost effective to maximize production of this extraordinarily valuable crop throughout the western U.S.

Justification for unrelieved pain or distress:

Lethal removal is currently the only effective method for controlling gophers in an agricultural/natural resource setting. Gophers make burrows underground making monitoring gophers for lethal treatment strategies impractical and essentially impossible, therefore pain and distress cannot be ameliorated or alleviated.

For those methods that cause death by anoxia, death can be within a few hours or very rapid. Euthanasia of sick animals conflicts with the goal of the study since animals receiving a sublethal dose may become lethargic but still have the ability to recover. For tests of products claimed to kill vertebrate pests, death is the response that must be assessed as it is the endpoint claimed on the label and desired by the user. In efficacy studies involving rodenticide toxicants, it is fundamental that observations of animals continue until the animal succumbs completely to the poison (i.e., dies) or recovers.

Federal regulations requiring procedure:

Not applicable. However, all control methods used in this study conform to California

Department of Fish and Game and California Department of Pesticide Regulation code and are widely used and considered acceptable for gopher control.

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